



Microsoft®

Windows.net™

Server Family

Windows® Media Services in Windows .NET Server

**Bret O'Rourke
Group Program Manager
Windows Media Services
Microsoft**



Agenda

- **Streaming Media Landscape**
- **Windows Media “Corona”**
- **What is Windows Media Services**
- **Customer Scenarios**
- **Capabilities in-depth**
- **Enterprise Deployment**
- **Requirements and Packaging**
- **Call To Action**

Streaming Media Landscape

Emerged in mid 90s for real-time audio and video over the internet

- **Early business models depended on**
 - **High speed internet connectivity to homes**
 - **Advertising & pay-per-view**
- **... and failed**
 - **Slower than expected adoption of broadband**
 - **Internet advertising model obliterated by the burst of the .com bubble**
- **Today**
 - **Exploring new opportunities in the enterprise**

Microsoft's New Platform

Windows Media "Corona"

NEW!
Windows
Media
A/V
Codecs

NEW!
Windows
Media
SDK

NEW!
Windows
Media
Player

NEW!
Windows
Media
Encoder

NEW!
*Windows
Media
Server*

Better Together...

WMS Customer Scenarios

- **Corporate-based**
 - **Live Executive Broadcast**
 - **On-demand training**
 - **Programmed Broadcast**
- **Commercial-based**
 - **News/Entertainment**
 - **Internet-based Radio/TV stations**
 - **Radio rebroadcasts**
 - **Pay-Per-View**
 - **Wireless subscription services**

Live Executive Broadcast

Description

- Company Executive addresses entire organization
- Archive content for on-demand playback

Target Audiences

- IT Professional configures WMS and camera/encoder
- Knowledge worker consumes content

Feature requirements

- Capable of reaching every employee world-wide
- Stream from on-site camera
- Delivered via corporate Intranet
- Multicast for broad reach



On-Demand Training

- **Description**

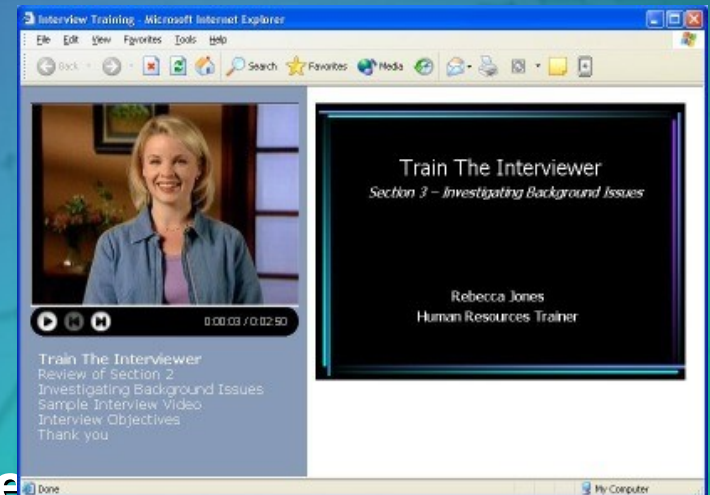
- Corporate training division or individual departments provide on-demand training to every desktop

- **Target Audiences**

- AV specialist or Knowledge Worker creates content
- IT Professional configures content for on-demand playback
- Knowledge worker consumes content

- **Feature requirements**

- Employees can view training at a time of their convenience
- Provides 'just in time' training



Offline Content Creation

- Synchronize audio, video, slides & images

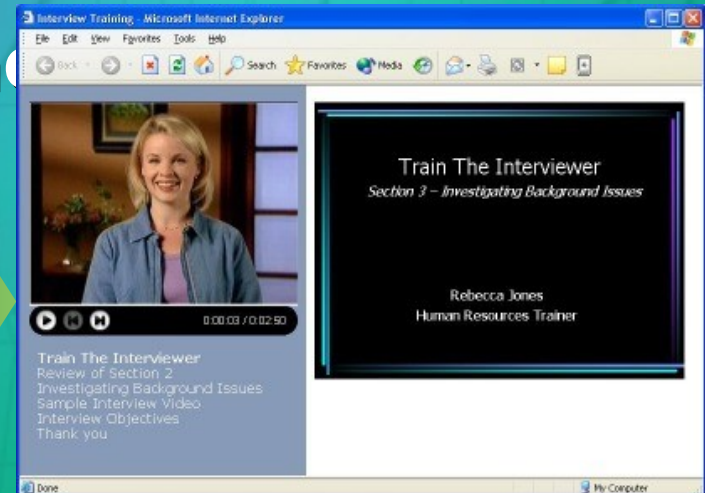
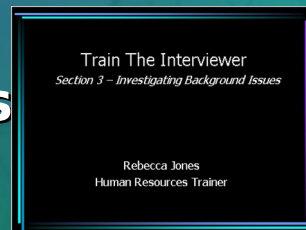
- Create engaging rich-media presentations

- View online and in the

Audio & Video



Slides & Images



Rich-media Presentation

Programmed Broadcast

- **Description**
 - **Corporate events dept creates 7x24 “Events and News Channel” broadcast to every desktop**
- **Target Audiences**
 - **AV specialist / Knowledge Worker creates content**
 - **IT Professional configures content for sequential multicast playback**
 - **Knowledge worker consumes content**
- **Feature requirements**
 - **Broadcast a sequence of clips to end-users**
 - **Dynamically change clips**
 - **Multicast for broad reach**

A faint, stylized world map is visible in the background, overlaid on a blue-to-green gradient. The map shows the outlines of continents and is accompanied by a grid of latitude and longitude lines.

demo

**Corporate
Scenarios**

WMS Features

**Fast
Stream**

**Dynamic
Content
Programming**

**Industrial
Strength**

**Extensible
Platform**

WMS Features

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Fast Stream

Instant-on, Always-on For Broadband

Instant-on

- Immediate playback with no initial buffering
- Seek forward and backward with no delay
- Switch streams like changing TV channels

Always-on

- No buffering interruptions during stream
- Mitigates fluctuations in network bandwidth
- Great for high-latency wireless networks

A faint, stylized world map is visible in the background, rendered in a light blue/green color against a darker blue gradient. The map shows the outlines of continents and is overlaid with a grid of latitude and longitude lines.

demo

Fast Stream

WMS Features

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Dynamic Content Programming

Extends TV-like Programming Capabilities to all devices

Dynamic Playlists

- Dynamically change order of content
- Auto-generation of personalized playlists
- Extends capabilities to wireless devices

Comprehensive Ad Support

- Support for lead-in and interstitial ads
- Full integration with 3rd party ad server
- Advanced usage reporting

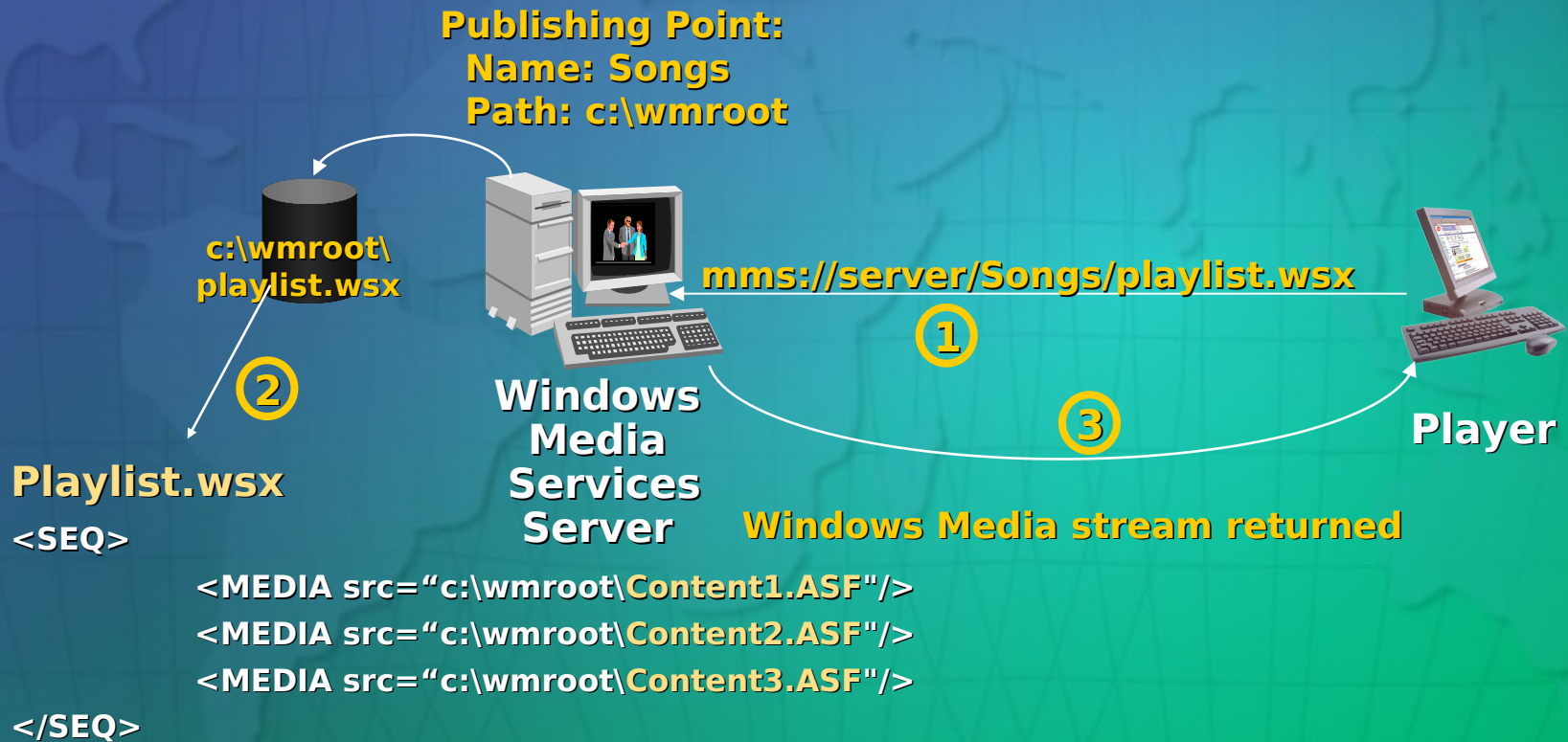
Server-Side Playlists

What Are They?

- **Server-side playlists are literally executed on the server**
- **Client makes one connection, server assembles and streams playlist to users**
- **Can be used in both on-demand and broadcast scenarios**

Playlists

On-Demand Server-Side Playlist



Server-Side Playlist Scenarios

- **7x24 Corporate news/events channels**
- **7x24 Internet-based radio/TV stations**
- **Live producer broadcasts (switch between multiple camera inputs)**
- **Ad-supported movie trailers**
- **PPV-supported movies with trailers**
- **Ad-replacement radio rebroadcasts**

Server-Side Playlists

Benefits

- **Provides broad reach for any stream-enabled device (PC, handset, PDA...)**
 - **Necessary for devices with low storage, low memory footprints**
- **Enables radio/TV “Program Director” functionality**
- **Allows playlists to be changed dynamically**
- **Insert bumpers, station IDs, emergency announcements, branding clips...**
- **URLs can be dynamically**

Server-Side Playlists

Feature Overview

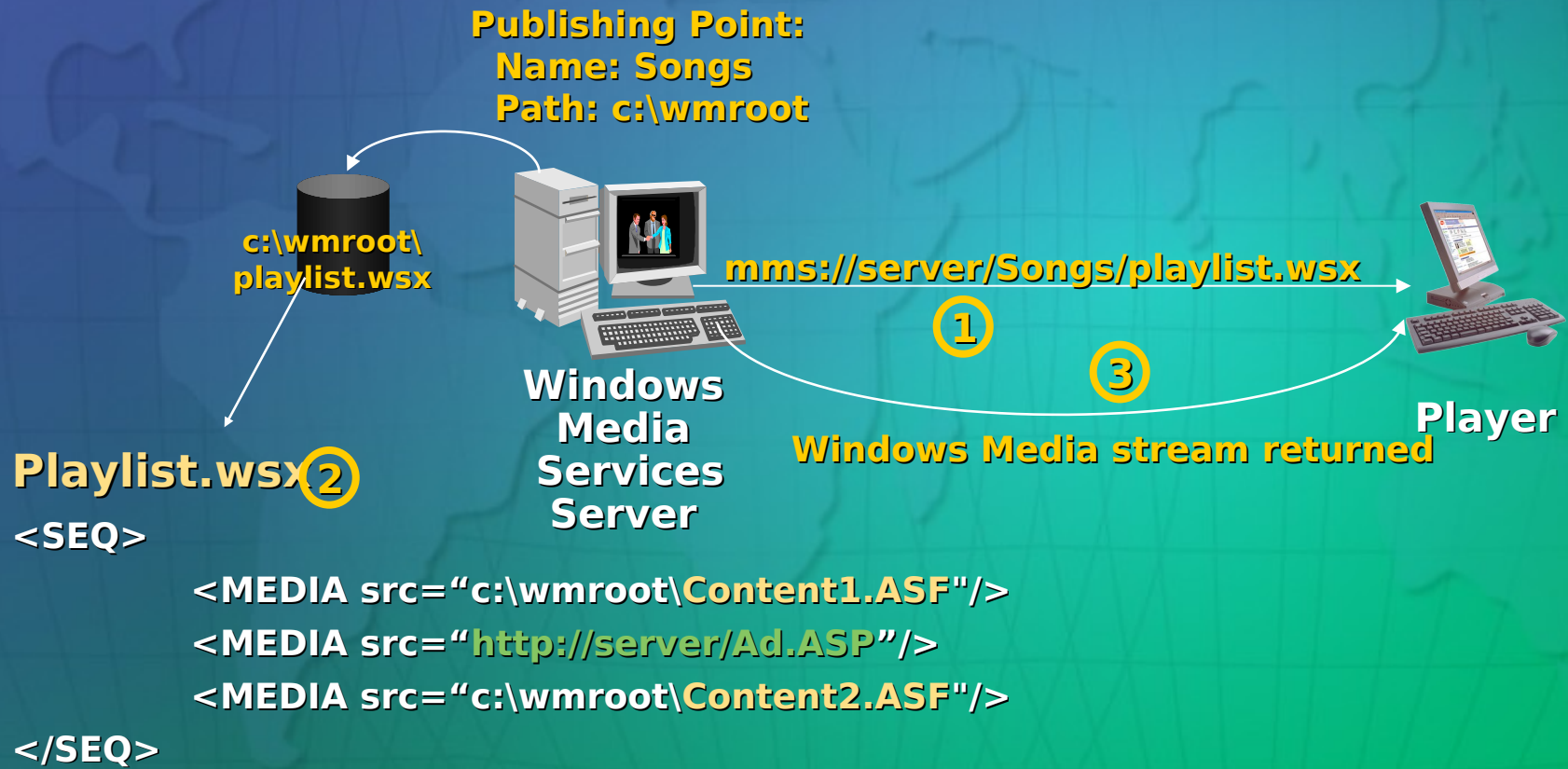
- **Comprehensive SMIL 2.0-based engine**
- **Typically WMS reads text-based SMIL-formatted file**
- **Support for playlist transforms**

Advertising Features

- **Bumper and interstitial ad support**
- **Short clip support (3-5s)**
- **Dynamic content insertion/deletion**
- **Cookie support**
- **Ad measurement**
- **Server “event” support for ad insertion (similar to TV “tones” for advertising)**

Advertising

Dynamic Ad Entries



Wrapper Playlists

1. Client requests:

```
rtsp://ServerName/  
MovieTrailer.WMV
```

2. Wrapper Playlist:

```
<smil>  
  <media  
src="Advertisement.WMV">  
  <media src="%RequestedURL%">  
  <media src="Trailer.asf">  
</smil>
```

3. Client sees:

```
<smil>  
  <media src="Advertisement.WMV">  
  <media src="MovieTrailer.WMV">  
  <media src="Trailer.asf">  
</smil>
```

demo

Dynamic Content Programming

WMS Capabilities

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Industrial Strength

The most reliable and secure rich media distribution system

Scale Up

- Supports twice as many concurrent users
- Enables streaming for the largest enterprises and CDNs

Scale Out

- Platform to easily build cache/proxy solutions
- Flexible administration
- Secure distribution of content
- Standards based

Industrial Strength

Areas of Focus

- **Scale Up**
- **Scale Out**
- **Reliability**
- **Security**
- **Administration**
- **Supported Standards**

Scale Up

- **Today's Windows 2000 WMS provides the *best* Windows-based scale in industry**
 - **Only vendor to submit to ZD Labs for benchmark tests**
 - **9000 streams off a single machine**
- **WMS in Windows .NET Server is *far* more scalable than its predecessor**

Scale Out - Cache/Proxy

- **Comprehensive platform for solutions**
- **Plug-in model for 3rd party ISVs**
- **Plug-in dictates policy**
- **Freshness checking**
- **Propagate events to origin server**
- **Redirection support**
- **Pre-stuff capabilities**
- **Accel/decelerated download support**

Reliability

- **Testing with Windows Clustering Services**
- **In-proc / out-of-proc support for WMS plug-ins**
- **Server/encoder/player connection reliability**

Connection Reliability

Client-Side Playlist File

```
<ASX VERSION="3.0">
```

```
<REPEAT>
```

```
<ENTRY>
```

```
<REF HREF="mms://Server1/Live"/>
```

```
<REF HREF="mms://Server2/Live"/>
```

```
<REF HREF="mms://Server3/Sorry.a  
sf"/>
```

```
</ENTRY>
```

```
</REPEAT>
```

```
</ASX>
```

Server-side Playlist File

```
<SEQ REPEATCOUNT="indefinite">
```

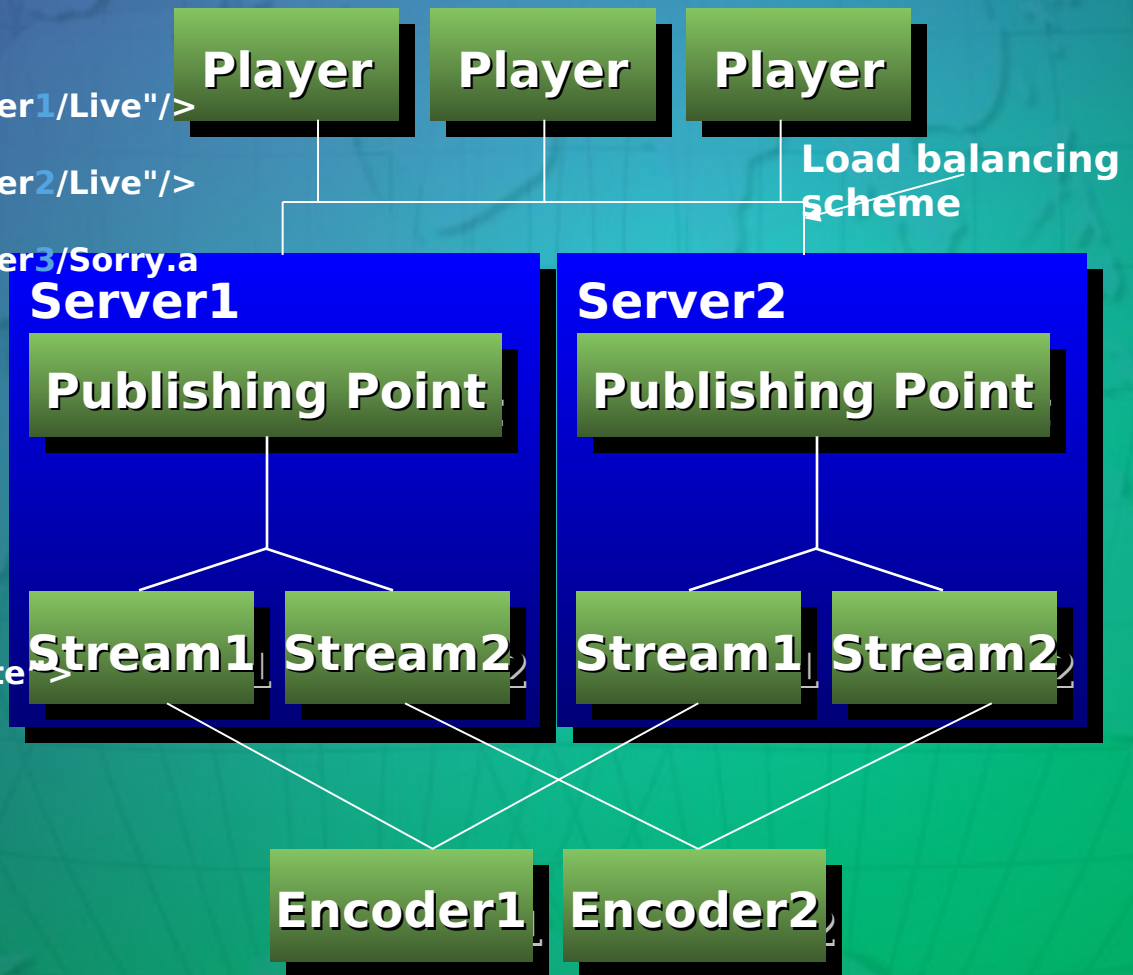
```
<SWITCH>
```

```
<MEDIA  
src="http://encoder1"/>
```

```
<MEDIA  
src="http://encoder2"/>
```

```
</SWITCH>
```

```
</SEQ>
```



Security

- **Authenticate end-users**
 - **Digest, HTTP-Basic, NTLM authentication**
 - **Write custom plug-ins**
- **Authorize end-users**
 - **Authorize individual content clips, directories, and publishing points**
 - **Allow/deny IP addresses**
 - **Write custom plug-ins Can authentication/authorization server-to-server connections**

Administration

- **Microsoft Management Console**
- **Web-based (ASP)**
- **Windows Script Host**
- **PerfMon, Event viewer, SNMP support**

Administration - Hosting

- **Designed for multi-hosting**
- **Per-customer configuration**
 - **3x more options for publishing point limits vs. previous version**
 - **Authentication/authorization**
 - **Event plug-ins - i.e., a log per customer**
 - **Fast Start/Cache settings**
 - **Wireless configuration**

Supported Standards

- **Client-to-server protocol support**
 - **Multicast streaming - IGMPv3 support**
 - **RTSP client protocol support**
 - **HTTP 1.0/1.1 client protocol support**
 - **IPv6 support**



demo

**Authentication
and
Administration**

WMS Capabilities

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**Extensible
Platform**

Extensible Platform

Integrates and extends easily and completely into existing systems and solutions

Flexible Plug-in Interfaces

- Developers can easily develop custom solutions – 8 plug-in interfaces

Powerful Object Model

- Over 1000 server interfaces
- Supports WBEM/WMI

Broad Programming Language Support

- Support for 7 languages for some plug-in
 - i.e. C++, C#, VB Script, Perl

WMS Plug-ins

- **Basic unit of server functionality**
- **Most “core” WMS features are plug-ins**
- **Developers can add or remove features**
- **Exposed via object model & admin tools**
- **Each plug-in can expose its own admin user interface in both ASP and MMC**

Server Architecture

Object Model

COM Interfaces Accessed from VB, C++ or any script

Control Logic - Process Client Requests

Control Protocol

Commands

Events

Authentication

Cache

Network Interface

Data

Data Path - Pump Data

Data Sink

Media Parser

Data Source

Playlist Parser

Object Model and Events

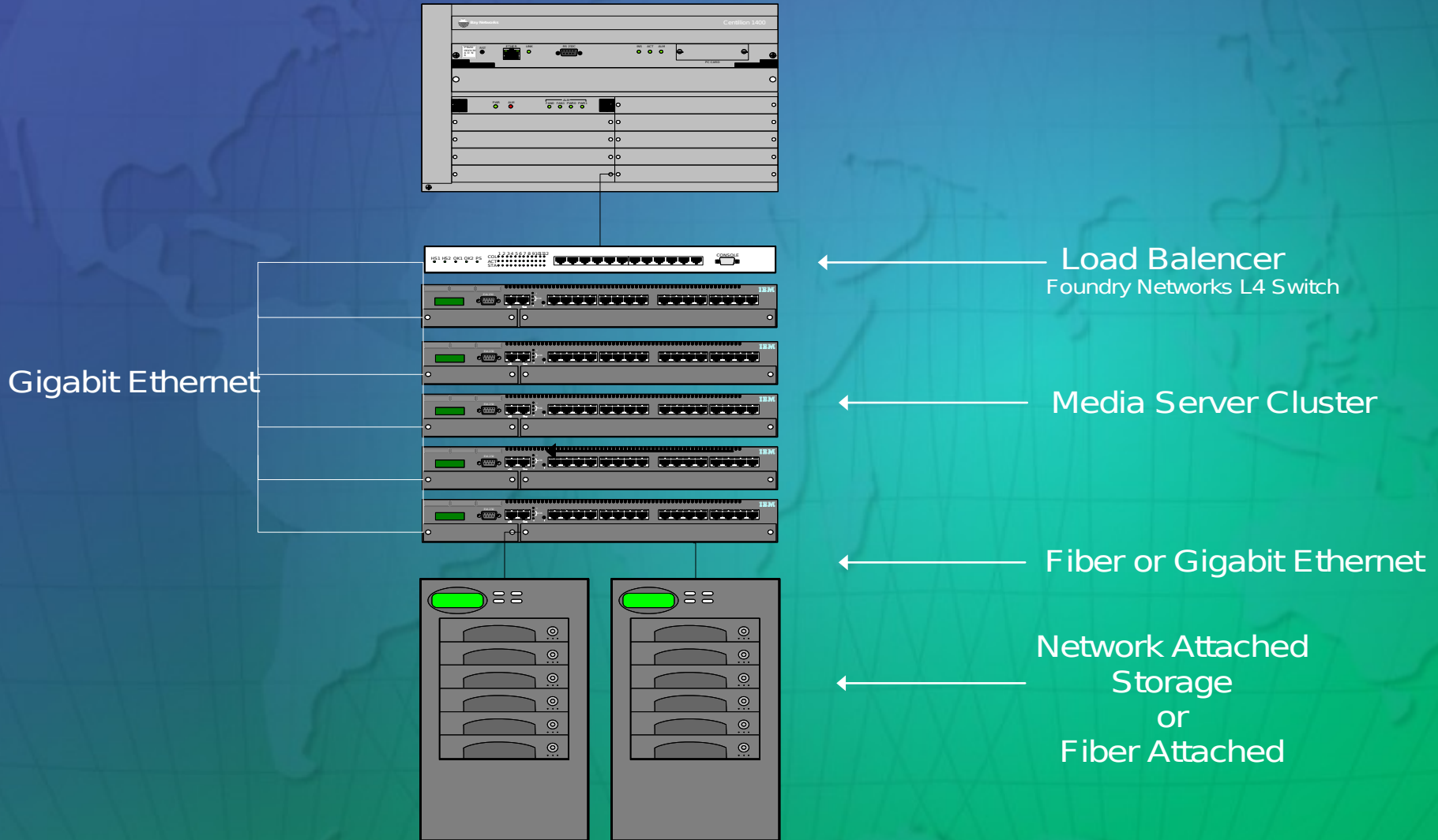
- **Object model support**
 - **Playlists**
 - **Publishing points**
 - **Clients**
 - **Monitoring**
 - **Counters**
 - **Plug-ins**
- **Events**
 - **WBEM/WMI support**
 - **Events for all configuration and run-time changes**



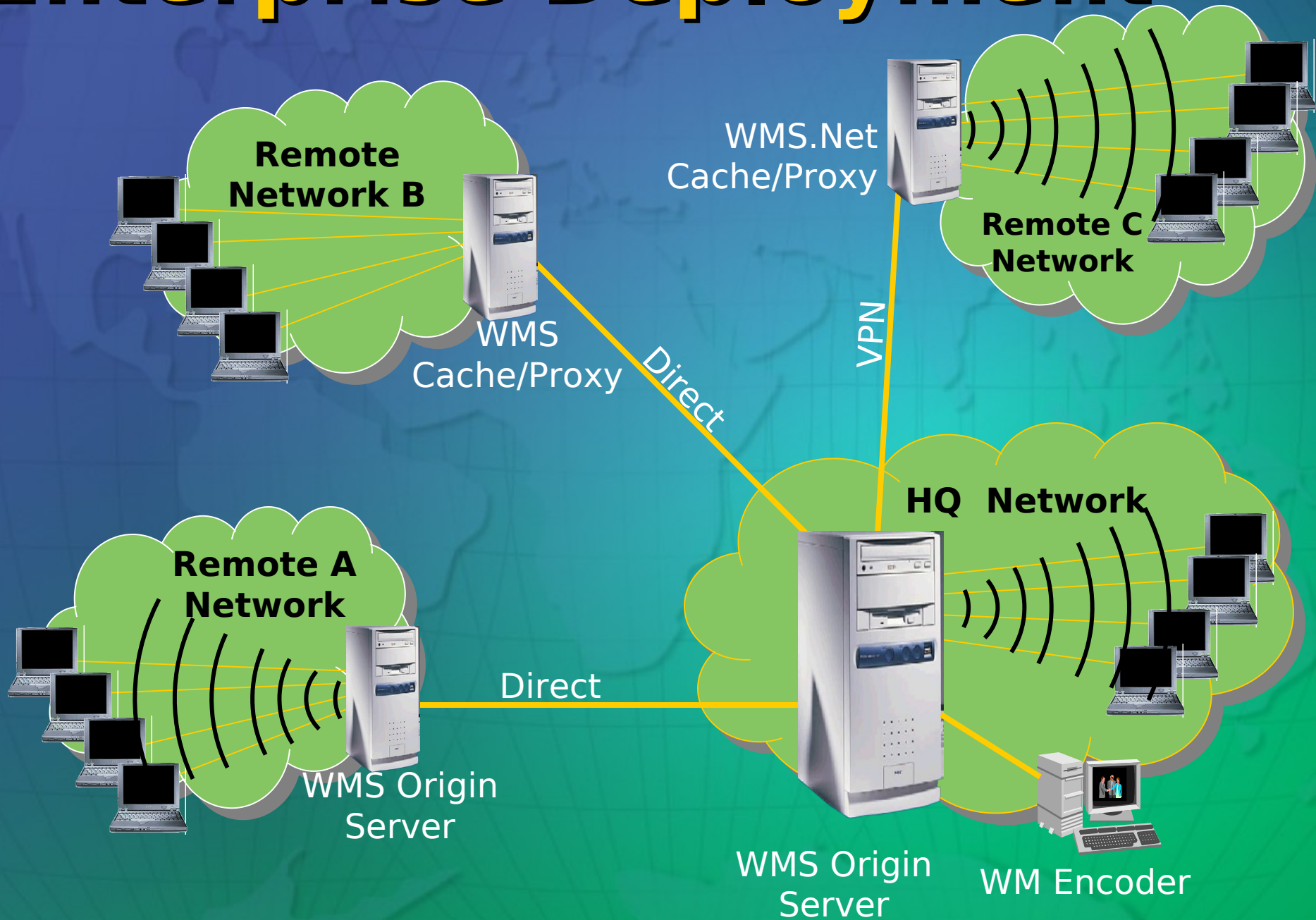
demo

Extensible Platform

Deploying for Scale



Enterprise Deployment



WMS Packaging

- **Included in Standard, Enterprise and Datacenter Server**
 - **Uninstalled by default**
- **Features only found in Enterprise and Datacenter Server**
 - **Cache / proxy server support**
 - **Multicast content delivery**
 - **Wireless streaming optimizations**
 - **Internet authentication methods**
 - **Custom plug-in support**
 - **Active Script Plug-in**

Summary

**Fast
Stream**

**Dynamic
Content
Programming**

**Industrial
Strength**

**Extensible
Platform**

Call to Action

- **Install and use WMS in Windows .NET Server**
- **Read WMS product and SDK documentation**
- **Deploy Windows Media Solutions *today* with Windows 2000 Server and Advanced Server and win incremental Windows Server sales!**
- **For more information, visit the Windows Media site on <http://Microsoft.com>**

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